Labour participation and social security in the Netherlands

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LABOUR PARTICIPATION AND SOCIAL SECURITY IN THE NETHERLANDS;
Reconstructing the welfare state

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Abstract

Generous social security is regarded as a major source of low labour participation in The Netherlands. The rise in the demand for social security benefits has led to an increase in the wedge - the difference between gross labour costs and net wages -. This has, both at the demand side and the supply side, further discouraged labour participation, which again resulted in higher demand for social security. Our paper discusses this negative spiral using a simulation model which quantifies the major relationships with respect to labour participation and social security in a consistent way. Firstly, in a cliometric simulation, we show how economic developments in The Netherlands would have looked like if the demand for social security (more specifically the amount paid for social security benefits) would not have increased relative to national income in the last two decades. Secondly, a number of scenarios shows how the welfare state can be reconstructed by restricting the demand for social security, and hence how the negative spiral of labour participation and social security can be curbed in the future.

1. Introduction

An extended and generous social security system is often associated with a highly developed welfare state. From that point of view The Netherlands should be regarded as such. However, the costs of maintaining the system of social security in The Netherlands have become extremely high and labour participation has strongly decreased, so that welfare is at stake just because of the generous social security system. The present level of social security may no longer reflect policy preferences, nor does it necessarily reflect past preferences since in the design of the social security system no such high costs were anticipated. Therefore, the political views on welfare and social security have shifted recently in The Netherlands. The crucial policy question in this respect is about the role and prospects of the government in enhancing social welfare. More specifically the question is what services the government should provide in order to promote social welfare and to what extent, for instance, the provision of social insurance should be left to the private sector.

Against this background the present paper provides a quantitative analysis of the mutual relationships between the demand for social security, labour participation and economic activity. After a short historical overview of economic thinking about these relationships in The Netherlands in the next section, Section 3 presents an allocation model for labour participation that quantifies the relationships which are at the middle of the present policy discussions on the changing role of social

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security in the (re)construction of the welfare state. Section 4 provides policy simulations using this model. Section 5 evaluates these policies and gives some conclusions.

2. Social security in The Netherlands

The building up of the system of social security in The Netherlands mainly took place in the 1950's and 1960's. New elements were added to the existing system so that this period can be labelled as the *construction period* of social security. On the other hand the period from 1970 onwards can be labelled the *consolidation period*, in which the system was not expanded with major new provisions. However, during this period the demand for social security increased dramatically because of a sharp rise in a number of persons who were (or made themselves) entitled for benefits. The consequent mechanism is sometimes referred to as the social security trap (see Van Praag and Van Beek, 1991). According to this mechanism, the demand for social security is trapped into a negative spiral and diverges further and further from equilibrium. The model of the next section makes this negative spiral explicit by describing the relationships between social security, the labour market and economic activity.

The extension of the social security system and the consequent growth of demand for social security contributed considerably to the extension of the public sector in The Netherlands. The economic policy debate of the last decades has focused on this aspect. Kessler (1979, 1981) put much effort in providing a correct statistical definition for a broadly defined public sector and, hence, for its counterpart the market sector. Table 1 gives the breakdown of the number of people receiving income from the public sector and from the market sector according to Kessler's analysis. The discussion focused not only on the share of public expenditure in national income, but also on the number of people obtaining income from the public sector as a percentage of those having their income from the market sector. The table shows that both percentages have considerably increased until the second half of the 1980's.

The economic policy debate of today mainly focuses on the low labour participation of which the affluent social security is considered as a main cause. The statistic indicating the ratio between the number of people receiving benefits and the number of active workers is at the core of the discussion. Table 1 shows this statistic for the reference period as well. It demonstrates that at present each active worker in The Netherlands almost completely supports another person who is entitled to a benefit, whereas in 1970 a person entitled to a benefit had his or her support payed by two active workers[1]. Some may argue that the present situation in The Netherlands, where each person supports another person, is optimal from a social welfare point of view. To the economist it is, however, clear that the 'productive basis' of the country has become rather small.

[1] These data refer to labour years: as the number of part time workers increased considerably during the last decade, the trend looks somewhat less dramatic when employment is measured in persons.

Table 1Earners in the public sector and the private sector, in 1,000 labour years

	1970	1975	1980	1985	1990	1991	1992	
1 Active persons in the public sector[a]								
a Government and social funds	542	598	668	697	691	688	683	
b Semi-public sector	201	300	337	369	392	400	413	
Total	743	898	1005	1066	1083	1088	1096	
2 Inactive persons in the public sector with benefits in virtue of								
a Old Age Pensions/Widows and Orphans Act (AOW and AWW)	1502	1681	1853	1962	2145	2171	2195	
b Occupational disability (WAO)		188	299	502	585	682	697	715
c Temporary illness	229	302	325	267	354	358	331	
d Unemployment	82	201	237	613	498	482	502	
e Early retirement (VUT)		0	0	8	35	70	70	70
f Public assistance (incl. artists arrangement etc.)		79	114	127	185	175	176	176
Total (a - f)	2080	2597	3052	3647	3924	3954	3989	
3 Earners in the public sector (1+2)	2823	3495	4057	4713	5007	5042	5085	
4 Earners in the private sector[a]	3720	3474	3473	3264	3590	3627	3641	
Earners in the public sector as a percentage of earners in the private sector (3/4)	75.9	100.6	116.8	144.4	139.5	139.0	139.7	
Inactive persons as a percentage of active persons (2/(1+4))	46.6	59.4	68.2	84.2	84.0	83.9	84.2	
Government expenditure as a percentage of national income		33.0	41.3	47.1	46.2	50.5	52.0	51.9
Size of the wedge (as a percentage of gross wage costs)		39.2	47.5	51.3	54.5	60.4	60.8	61.1

a Exclusive of temporary illness.
Source:*De Nederlandsche Bank; last two lines: sources mentioned in appendix.*

The last lines of table 1 contain data on the share of public expenditure in national income and the size of the wedge (gross wage costs minus net wage income as a percentage of gross earned wages). According to both statistics the relative size of the public sector appears to have increased with approximately 20 %-points during the last two decades.[2]

The presentation of the data in table 1 forms the starting point for the model based analysis of social security which is discussed in the next two sections. The current simulation model exploits quantitati-

[2] The data on the share of public expenditure are based on the data sources used in our simulation model and do not comprise, amongst other things, local authorities public expenditure. Therefore our numbers are somewhat lower than those of the policy discussions.

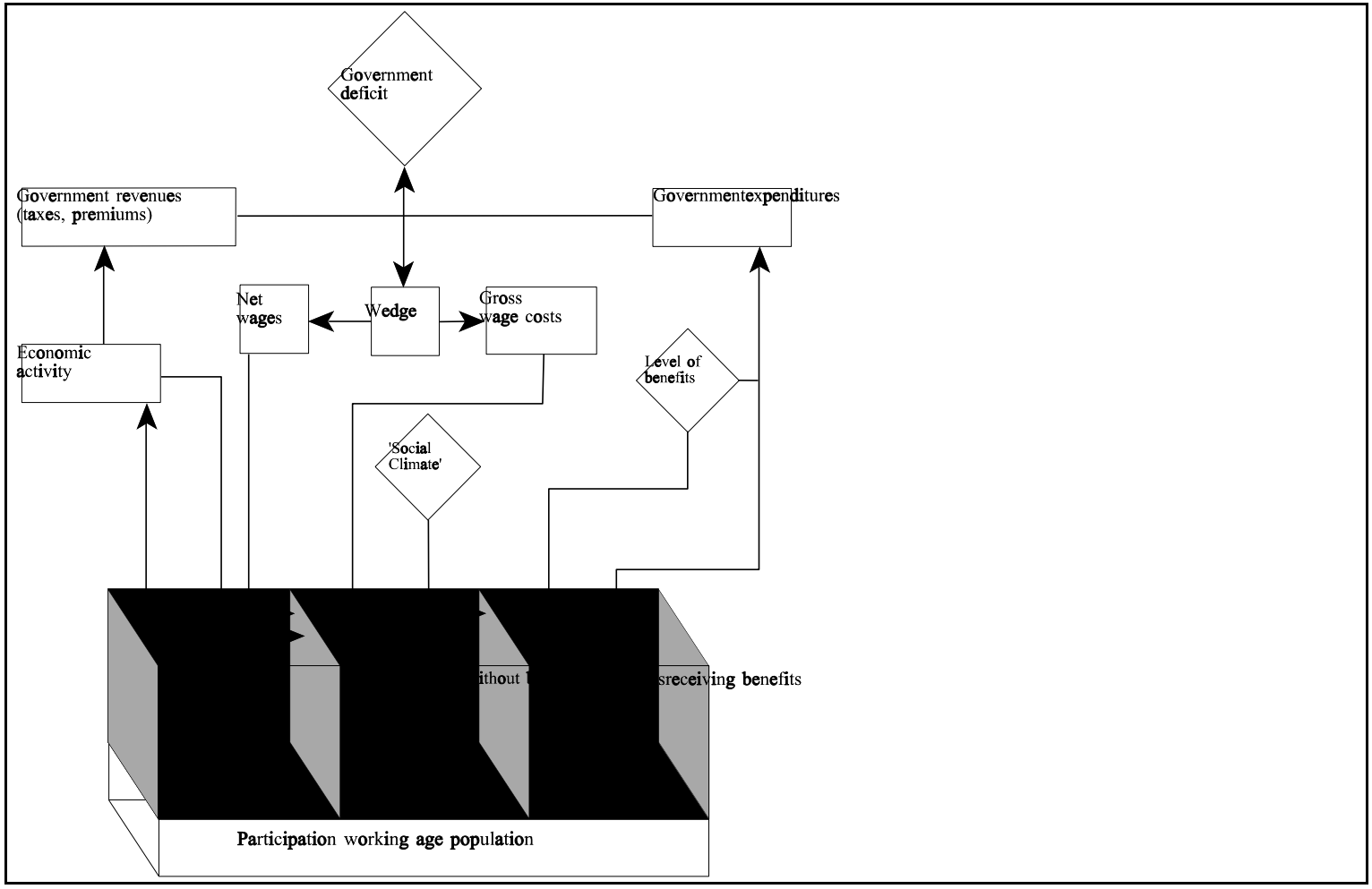
ve research of others on the relationship between social security and the rest of the economy. In this respect we mention Den Butter and Compaijen (1991), and Vijlbrief (1992) who studied the relationship between social security and the labour market using small aggregated equilibrium and disequilibrium models. Whether the labour market clears or not appears to have a major influence on the effects of social security on the labour market. According to the equilibrium model a reduction of the benefit to wage ratio (the 'replacement ratio') has a much larger effect on employment and economic activity than in the case the economy is modelled to be in disequilibrium. However, our present model does not explicitly consider the problem of market-clearing but intermediates between these two stands by including determinants of both labour demand and labour supply into the allocation mechanism. As mentioned before, the focus of the model is on the relationship between social security and labour participation, which is only casually looked at in other models of social security.

3. An allocation model for labour participation

Figure 1 pictures the relationship between labour participation, social security and the government in our model. The figure shows a breakdown of the total working age population into three categories, namely the active workers (participants), non-participants receiving a benefit, and finally non-participants who do not receive a benefit. The figure visualizes the total working age population as a basin with movable bulkheads in between the three categories distinguished. The upper part of the figure shows the mechanisms which sets these bulkheads into motion. It illustrates how changes in the allocation of the total working age population over the three categories can take place. The total working age population is exogenous as it is determined by demographic factors. Movements of the bulkheads within the three categories indicate to what extent labour participation (defined in this context as the ratio of active workers to the total working age population) is subject to change and how changes in the ratio of active workers and non-participants receiving a benefit take place.

The mechanisms which set the bulkheads into motion relate to the working of the labour market. Labour participation is determined both by labour demand and by labour supply. First we look at labour demand. Economic activity constitutes the major determinant of labour demand. When economic activity increases the bulkhead between the active workers and non-participants moves to the right and, hence, the part of the basin consisting of active workers becomes larger. Conceivably, the bulkhead between non-participants with and without entitlement to benefits will also move to the right. In order to keep the figure simple, the latter movement is not portrayed. Gross wage costs constitute the second major determinant of labour demand. A rise of gross labour costs will, *ceteris paribus*, lead to a decrease of labour demand. Hence the bulkhead between active workers and non-participants will move to the left. So far for labour demand.

Figure 1Graphical representation of the allocation model



Now we come to labour supply. Here net wages act as determinant. A rise in net wages leads to an increase in labour supply, so that the bulkhead between the active workers and the non-participants will move to the right. On the other hand, a fall in net wages, for instance because of an increase in the incidence of taxes and social security premiums, brings about a fall in labour supply and in labour participation.

The government disposes of some instruments in the field of social security which directly affect labour supply. Government instruments are depicted in the figure by means of diamonds, whereas variables in squares are either autonomous or endogenous. The first instrument of social security which influences the allocation of the working age population is the relative benefit level, or more specifically the ratio between net benefits and wages (the 'replacement ratio'). A higher replacement ratio induces more people to seek entitlement for a benefit and effective labour supply will decrease. Thus, the ratio between active workers and non-participants receiving benefits will come down and so does total labour participation. A rise of the benefit wage ratio therefore causes the bulkheads in the figure to move to the left.

The second instrument of the government which influences labour participation, has been labelled here, rather vaguely, as *social climate*. A first aspect with regard to this determinant in the allocation model is the well known moral hazard problem with social security. Lubbers (1990) describes a decay of the social climate as the erosion of the sense of responsibility when applying for social security. On the other hand, social climate comprises the fact that people will become aware of their legal right to demand social security in case they have become eligible[3]. For that reason we use the wording of social climate which does not contain a value judgement. One could also speak of a kind of 'rent seeking', which is yet another aspect of the social climate variable. When, in our terminology, social climate decreases the bulkheads in the basin move to the left. Then the ratio of active workers and non-participants decreases. On the other hand, an increase in social climate, induces, as the figure shows, the bulkheads to move to the right. Whereas the benefit level as an instrument of the government represents so-called *price policies* in social security, the possibility of the government to influence social acceptance or the social climate can be regarded as examples of *volume policies*. An increase in the social climate can be brought about by strengthening the standards of eligibility for social security. Another way to effectuate a higher social climate is to call for the responsibility of the people not to abuse social security, and to provide training and the opportunity to obtain working experience rather than just giving financial compensation ('workfare' instead of 'welfare'). In The Netherlands this kind of policy is part of the so-called 'social renewal'. Obviously the outcome of such policy is very uncertain and difficult to quantify.

Changes in labour participation bring about feedback mechanisms which are of importance in the present context. When more people become active in the production process economic activity will

[3] A possible way to endogenise the social climate variable in the context of welfare economics is to assume a disutility for the applicants of social security, which becomes smaller when the number of persons receiving benefits increases. A similar way would be to consider, in the context of public choice theory, the power for public pressure of social groups (see Van Winden, 1992).

increase, not only because of the input of productive capacity which remains idle in the case of non-participation, but also because the employment of this productive capacity enlarges human capital by learning by doing, while on the other hand human capital depreciates when it remains unused (see Bastianen *et al.*, 1993 for the distinction between primary and secondary social costs in case of non-participation). Consequently, the enhanced economic activity induces higher tax receipts of the government. On the other hand, a rise in the number of non-participants receiving social security benefits leads to an increase in government expenditure. The size of this increase depends, among other things, on the benefit level.

The government budget confronts government expenditure with income from taxes and social security premiums. When expenditures rise, for instance because of an increase in the number of people receiving benefits, higher expenditures can be financed in two ways, namely by enlarging the government deficit or by an increase in the wedge between gross wage costs and net wages. An increase in the government deficit, indicated in the figure by a diamond as a possible instrument of government policy, is not feasible in the present economic and political situation in The Netherlands. That is why a rise in the demand for social security nowadays almost automatically implies that the wedge between net wages and gross wage costs becomes larger. Moreover, this endogeneity of the wedge is also institutionally determined as social funds are financed on a balanced budget basis. Figure 1 clearly illustrates this central and crucial role of the wedge and the respective mechanism which determines labour participation and the demand for social security. A rise in the wedge leads to labour market discouragement, because both labour demand and labour supply decrease. Hence, the number of non-participants rises. This sets in motion a new part of the spiral of higher government expenditure and a larger wedge.

The figure also points out another negative spiral: because of the decrease of the productive capacity in case of low labour participation economic activity falls, so that the government's income from taxes and social security premiums decreases, inducing the wedge to rise still further.

A reversal of these two negative spirals is essential for the future of the Dutch welfare state. The diamonds of the figure symbolize the instruments of the government by means of which it can effectuate such a reversal. Of course, another effective instrument which has been extensively used in The Netherlands during the eighties is that of a wage restraint. A wage restraint can contribute to the reversal of the spiral, especially when the benefit level is linked to the wage level.

The simulation model is centred around the allocation model which describes the breakdown of the total working age population, determined by demographic factors, into the three categories which we distinguish. This allocation model is reminiscent of a portfolio model according to which financial wealth is allocated to various assets.

We now explain the equations of the model (see Annex). Equations (1) and (2) describe the size of the working age population and the number of people receiving benefits from old age (AOW) and widows and orphans pensions (AWW). Both dependent variables are determined by demographic factors.

The allocation model is defined by equations (4 to 6). The quantity to be allocated to the three

categories is total working age population minus civil servants and workers in the so-called semi-public sector (eq. 3). Thus, we assume that employment in the public sector is autonomously determined by the government and does not influence labour participation of the rest of the working age population.

Figure 2Share of the three categories of the working age population distinguished in the allocation model

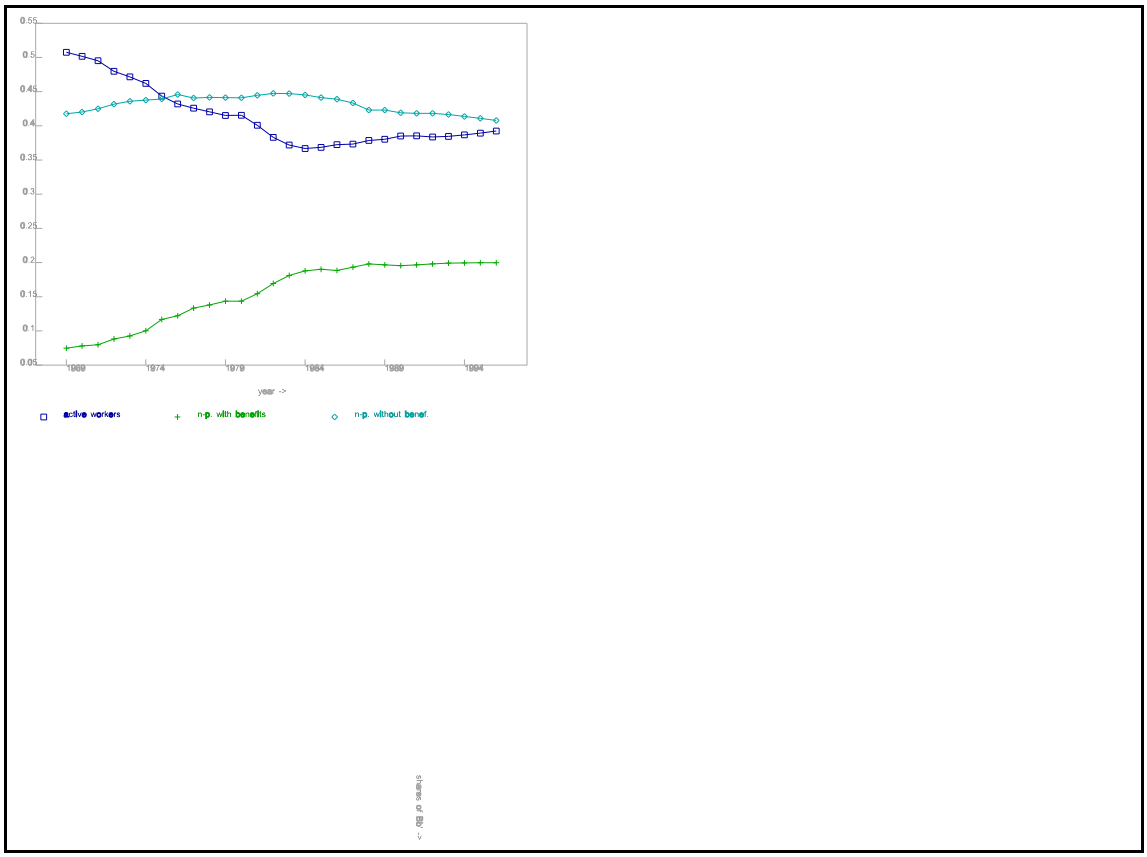


Figure 2 illustrates the development of the shares described by the allocation model. The figure comprises both past developments and an extrapolation up to 1996 using the simulation model. This extrapolation is based on plausible values for the exogenous variables of the model. The figure pictures the opposite developments of the share of active workers in the market sector and of non-participants receiving a benefit. The share of non-participants not receiving a benefit did increase somewhat in the 1970's, but in the 1980's this share has decreased.

The first determinant of the allocation model relates to labour demand, which is mainly determined by economic activity corrected for the trend of labour productivity (labour saving technical progress). Contractual working time is also relevant in this respect (eq. 7). An increase in employment, due to this labour demand variable, leads to a larger share of active workers in the market sector and, consequently, to a decrease in the share of non-participants. Real wage costs, corrected for increases

in productivity, act as second determinant of labour demand and have an opposite effect. A rise in wage costs induces labour demand to fall and the share of non-participants to rise.

The wedge is the third determinant of the allocation model and relates to labour supply. An increase in the wedge is associated with the discouragement of labour supply and, hence, with an increase in non-participation, so that both the share of the non-participants receiving a benefit and that of those who do not receive a benefit increases. The wage benefit ratio or replacement ratio is the fourth determinant. A rise in the benefit level also leads to less labour supply. In this case, substitution within the allocation model mainly takes place between active workers and non-participants receiving a benefit. A regress of social climate, the fifth determinant of the allocation model, also leads to an increase in the share of non-participants receiving a benefit. Finally, for technical reasons, we have included labour participation of women as a determinant of the allocation. An increase of female labour participation (which, by the way, is rather low in The Netherlands as compared to other Western industrialised countries) leads to a higher share of both the active workers and non-participants receiving a benefit. Equations (9) and (10) describe technical relationships between the wedge, gross wage costs and net wages. Equation (11) defines the replacement ratio. The model considers both the salaries of civil servants and the level of benefits (both to non-participants who belong to the working age population and to old age pensioners) as an autonomous instrument of the government.

The next set of equations of the model describes the government budget. Equations (12), (13) and (14) determine government expenditures, namely for salaries and for the payment of benefits. Equation (15) is a technical equation for indirect taxes. Equation (16) calculates desired government income from direct taxes and social security premiums as a residual of the budget restriction. The model assumes that government expenditure, given indirect taxes and the size of the government deficit, is completely financed out of taxes and social security premiums. This determines the size of the wedge (equation 17). Equations (18) and (19) are related definitions of the wedge which are used elsewhere in the model.

Finally, equations (20) and (21) describe, in a very broad manner, the positive effect of an increase in labour participation at the goods market. Until now, not much empirical work has been done on measuring welfare gains from enhanced labour participation empirically (see Bastianen *et al.*, 1993), so that our modelling of this effect is, by necessity, somewhat surmised. Equation (20) describes actual income as the combined result of demand at the goods market when the participation rate were at average (which is exogenous to the model), and the labour participation effect.

The model highly simplifies the actual social security system of The Netherlands as it adds together different social security provisions (disability, sickness, unemployment, early retirement and social assistance). Thus, the benefit level is calculated as the average level of benefits under these provisions. No simulations can be made on the dynamics of the allocation within these various provisions. Therefore, a possible extension of the model would be to add a second allocation model which describes the desaggregation of the non-participants receiving a benefit to the various provisions of social security. This is of importance in the context of actual policy discussions in The Netherlands, because a number of recipients of benefits under the disablement act should in fact be regarded as unemployed. However, as this paper only aims to demonstrate the working of the main mechanisms

of Figure 1, we did not yet include such a nested allocation model[4].

In order to complete the simulation model we need realistic values for the parameters of the model, which represent economic behaviour. Our selected parameter values for the allocation model are only partly based upon own empirical research. They mainly reproduce results from the literature. In this way, we conform ourselves as much as possible to the existing stock of empirical knowledge. However, the description of labour participation by means of an allocation model is a novelty of our approach and, therefore, we are bound to make a number of assumptions on the distribution of the effects over the three categories we distinguish.

The simulation model uses annual data from the reference period 1970-1988. Firstly, the allocation model assumes that the actual shares of the three distinguished categories of the total (corrected) working age population adapt to their desired shares according to a partial adjustment with a mean lag of one year.

Next we have selected parameter values for the determinants with respect to labour demand. We assume that on the long term a one percent increase in economic activity (corrected for labour productivity and working hours) leads to an equal increase of one percent in the number of active workers in the market sector. Hence, the long term elasticity is set to unity. This increase in the number of active workers is supposed to stem from both other categories proportionally.

The long run labour demand elasticity of labour costs is set equal to -0.5 (see Den Butter, 1993a, for a survey of empirical evidence for The Netherlands). Again the assumption is made of a proportional distribution over both other categories.

Empirical studies of the influence of the wedge, or net wages, on labour supply indicate a long term elasticity of 0.2 (see e.g. Theeuwes, 1988). The parameter value of the wedge in the first equation of the allocation model is set in accordance to this elasticity. Here the wedge is defined as the burden of taxes and premiums for workers (the burden for employers is included in the labour costs). Again a proportional distribution over both other categories is assumed.

We assume that the long run labour supply elasticity of the benefit wage ratio is rather small, namely -0.2. We have modelled the influence of the replacement ratio in the allocation model in such a manner that a rise in this ratio only induces a shift in the shares of active workers and non-participants receiving a benefit. We do so because there is no evidence on a possible influence of changes in the replacement ratio on the allocation of non-participants between those receiving benefits and those not receiving benefits. If these latter changes in allocation would take place it would, by the way, imply a direct form of rent seeking behaviour: it would suggest that if benefit

[4] Another feasible extension of the model would be to allow for a differentiated influence of the tax pressure (marginal versus average tax rates, taxes paid by employers versus employees) on the allocation mechanism. The Central Planning Bureau (1992a) uses the MIMIC-model, an applied general equilibrium model, for such simulations.

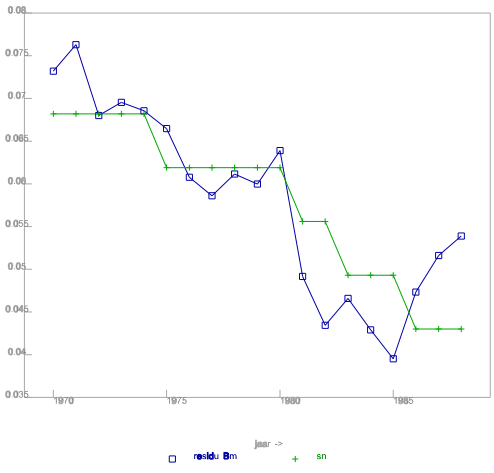
levels go up, more people seek eligibility for benefits without the intention to participate as active worker.

Increased participation of women is equally distributed over workers in the market sector and non-participants receiving benefits. The parameter values of the allocation model are calculated in such a manner that they are, in the mean of the reference period, in accordance with the chosen values of the long term elasticities. The respective values are given in table A.1 of the Annex.

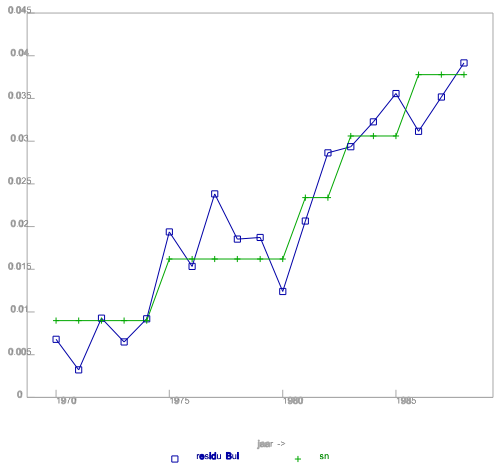
After these parameter values were established, the constant terms of the allocation model (which should add up to 0.5 because of the distributed lag) and the values of the coefficients with respect to the social climate variable have been determined by means of regression analysis. We have valued social climate by means of proxy on an *a priori* basis (5 in 1969-1974, 4 in 1975-1981, 3 in 1981-1982, 2 in 1983-1985 en 1 from 1986 onwards). When estimating the coefficient value of this variable, there appears to be a striking similarity between the values of the proxy and the trend of the residual of the allocation model (see figure 3). It appears that social climate mainly describes a reallocation between active workers and non-participants receiving a benefit. A low value of the proxy for social climate is associated with active workers moving to the part of the basin of non-participants receiving benefits. The influence on non-participants not receiving a benefit appears to be rather small. Therefore, we do not show the residual share of this category in figure 3. Obviously it does not make much difference for the simulation results when, as an alternative to the proxy for social climate, we would have followed the procedure of describing social climate by means of the trend value of the residual of the allocation model (see Den Butter, 1993b, for an elaboration of this procedure).

Figure 3 Residual shares in the allocation model

a. active workers



b. non-participants receiving benefits



□ residual share
\+ value of proxy

Finally the coefficient γ, indicating the effect of labour participation at the goods market, should be

given a plausible value. We have given γ the value of 0.5: a dynamic simulation over the reference period shows that the actual supply effect according to this coefficient value over the reference period has been 10% of national income, given the actual decrease of labour participation. We note that a sensitivity analysis, not presented in this paper, indicates that the simulation results are rather sensitive to the value of this coefficient γ, and, hence, of the extent in which an increase of labour participation induces more production. Moreover, the modelling of the participation effect depends upon the type of impulse: the effect of an autonomous increase in labour participation may differ from the second order effect of an autonomous increase in demand. Further research on this aspect is much desired.

A dynamic simulation over the reference period shows that the model is quite capable to describe the past, given the selected parameter values. Moreover, a joint estimation of all parameters of the allocation model does not lead to a rejection from a statistical point of view of the parameter values selected by us.

4. Scenario's for social security and labour participation

This section gives the result of a number of simulations using the model. The main aim of these simulations is to investigate the working of the model in order to see how it can be used in model based policy analysis. Of cause our simulations also give an impression of possible developments in reality under different assumptions on policy options. However, as the model is highly aggregated and does not differentiate between the various regulations of social security, it is only in a general sense that we do refer to policy measures as 'price policies' or 'volume policies'.

Firstly we present the results of two cliometric simulations. Such simulations show how economic development in the past would have looked like, if some events would have occurred that in fact did not occur (or if some events would not have occurred that in fact did occur). Table 2 shows how the Dutch economy would have developed from 1970 onwards, if the expenditures on social security (relative to real national income) had been constant. This simulation tries to visualise the idea politicians had on the future costs of social security at the start of the consolidation face of the system of social security at the beginning of 1970's. How would economic development have looked like if, at that time, not the benefit level, but the cost of social security had been hold constant? In order to simulate this budgeting of social security, we have respecified the model in such a manner that no longer expenditures on social security determine the wedge, but that, given the wedge, a fixed amount is available for social security expenditures. It implies that an increase in the number of persons eligible for benefits leads, c.p., to a reduction in the benefit level. The results of table 2 give the difference between the dynamic simulation of the past in which the value of the wedge is equal to its actual value (baseline projection) and a dynamic simulation (alternative projection) in which the wedge is kept constant.

Table 2 Indicators for the relative size of the public sector in the case of a wedge held constant at the level of 1970 (deviations from baseline projection)

		1975	1980	1985	1990
Economic activity	%	5.0	5.6	7.3	10.9
Employment	%	10.3	11.4	15.0	22.9
Government expenditure as a percentage of national income	%-p	-5.9	-7.6	-7.9	-12.3
Size of wedge (as a percentage of gross wage costs)	%-p	-10.1	-12.9	-16.1	-24.6
Earners in the public sector as a percentage of earners in the private sector	%-p	-19.1	-22.7	-30.9	-48.3
Inactive persons as a percentage of active persons	%-p	-11.5	-13.2	-17.7	-27.7

Explanatory note:%percentage difference from baseline projection
%-ppercentage-points difference from baseline projection

Table 2 shows that the actual increase of the wedge and the induced discouragement to participate in the labour market has had a rather large negative effect on economic activity and employment. Our keynote figures with respect to the productive basis only display a minor increase in case of a constant wedge.

Table 3 pictures the economic development when social climate would have remained at the level of 1970. Although this cliometric simulation is governed by quite another mechanism than that of table 2, the outcomes for the keynote figures show a striking similarity. If the demand for social security would have been as well restricted over the whole reference period as it was at the beginning of the 1970's and, hence, if no 'rent seeking' on social security would have occurred, economic development would have been much more favourable. This is mainly due to the difference in labour participation. This simulation with a constant social climate even yields somewhat more favourable effects on labour participation and economic activity than the previous simulation in which the wedge has been held constant.

Table 3Indicators for the relative size of the public sector in the case of a 'social climate' held constant at the level of 1970 (deviations from baseline projection)

		1975	1980	1985	1990
Economic activity	%	0.9	2.9	7.8	12.0
Employment	%	1.8	5.8	16.1	25.5
Government expenditure as a percentage of national income	%-p	-1.0	-2.9	-6.3	-9.5
Size of wedge (as a percentage of gross wage costs)	%-p	-1.8	-5.3	-13.7	-20.8
Earners in the public sector as a percentage of earners in the private sector	%-p	-4.2	-13.0	-34.9	-54.8
Inactive persons as a percentage of active persons	%-p	-2.6	-7.6	-20.6	-32.1

Explanatory note:see table 2.

Our simulation model is not only built to repaint the past but also to picture a future in which social security is less burdensome than today. However, for model simulations there is no big gap between past and future. Whereas a cliometric simulation may show how things went wrong in the past, scenario analysis may reveal how these mistakes from the past can be corrected in future. Therefore, the following scenario's for the future constitute the mirror image of the cliometric simulations discussed above.

Table 4 provides the keynote figures for the central projection over the future. As was mentioned before, this extrapolation is based on plausible future values of the exogenous variables of the model (when possible derived from the projections of the Dutch Central Planning Bureau) and is calculated using the simulation model. It appears that our central projection for the future does not contain much surprise: no major changes to come as compared to the present situation. Anyhow, according to our central projection the negative spiral of high costs of social security and a further discouragement with respect to labour participation does not continue. We note that such a projection is only effectuated because we have left the social climate proxy at its present value and do not assume that it will decrease further.

Table 4Indicators for the relative size of the public sector; extrapolation according to the distribution model (baseline projection for the future scenarios)

		1992	1993	1994	1995	1996
Government expenditure as a percentage of national income	51.9	47.1	49.0	48.8	48.6	
Size of wedge (as a percentage of gross wage costs)		61.1	61.1	60.9	60.5	60.1
Earners in the public sector as a percentage of earners in the private sector		144.7	145.1	145.0	144.5	143.8
Inactive persons as a percentage of active persons		87.1	87.8	88.0	88.1	88.1

Table 5Indicators for the relative size of the public sector; implications of a volume measure (deviations from baseline projection)

		1992	1993	1994	1995	1996
Economic activity	%	1.0	2.7	4.9	7.2	8.7
Employment	%	2.0	5.6	10.0	14.8	18.1
Government expenditure as a percentage of national income	%-p	-1.0	-2.4	-4.3	-6.1	-7.1
Size of wedge (as a percentage of gross wage costs)	%-p	-2.2	-5.6	-9.7	-13.8	-16.2
Earners in the public sector as a percentage of earners in the private sector	%-p	-6.0	-15.4	-25.8	-35.9	-41.5
Inactive persons as a percentage of active persons	%-p	-3.5	-9.0	-15.2	-21.4	-24.9

Explanatory note:%percentage difference from baseline projection
%-ppercentage-points difference from baseline projection

Table 5 gives the effects for the years to come of what we call volume policies. This simulation assumes that social climate will return to its value of 1970 (from 1 in 1991 to 5 in 1995 en 1996). The main results are completely in accordance with our intuition and we would not have needed a modelling exercise for it: such fast restraint on the eligibility for social security would most favourably affect labour participation, the productive basis and, hence, economic activity. Of course this scenario highly exaggerates what is (politically) conceivable in reality. Moreover, modelling volume policies by means of the social climate proxy does not give a clue of how actual policies should be

implemented (see the next section). Yet, the simulation illustrates the importance of a policy directed at solving the moral hazard and rent seeking problems of social security. Present policy proposals in The Netherlands include a number of specific measures in order to achieve such a reduction in the demand for social security. We note that similar measures are part of the 'European Renaissance' scenario of the Central Planning Bureau (1992b).

Table 6 pictures the future in case of an austere price policy. The upper part of the table gives the effects of a permanent 30 percent decrease in the benefit level, excluding that of old age pensioners (OAP). The lower part of table 6 shows the results in case old age pensioners undergo this reduction of 30 percent as well. The model illustrates that such price policies also lead to an enhanced productive basis and hence to more economic activity. We note that the consequences of an austere price policy are also described by the 'Balanced Growth' scenario of the Central Planning Bureau (1992b)[5]. It is remarkable that the favourable development of our scenario is not much affected when the old age pensioners, who account for more than half of the number of persons receiving benefits, are included in the policy measure. The reason is that the reduction in old age pensions only indirectly, by way of the wedge, induces a higher labour participation, whereas according to the model a reduction in the benefit level of the other recipients of benefits enhances labour participation directly as well as through second order effects. In this case the supply effect induces a strong spiralling mechanism.

As a final scenario for the future table 7 shows the effects of a reduction of the number of civil servants and workers in the semi-public sector. We assume an additional 2 % reduction each year from 1992 onwards (i.e. 2 % reduction in 1992, 4 % reduction in 1993 etc.). This policy of restraint implies that, as expected, the size of the public sector becomes smaller. On the other hand, not all superfluous public servants will find a job in the market sector. The net result according to the model is that this policy measure leads to a decrease of employment, so that the ratio of workers and non-participants receiving a benefit further increases. After a temporary decrease even the wedge comes out at a higher level at the end of the simulation period as compared to the central projection. This outcome of the model partly is the consequence of the assumption that civil servants and workers in the semi-public sector contribute to national income and that consequently, whenever they get dismissed and become unemployed the productive basis and economic activity decreases. This again leads to a fall of labour demand in the market sector.

[5] Although this scenario presumes a gradual introduction of a negative income tax (individualised tax credit), the size of the (marginal) wedge decreases considerably as compared to the base year 1990.

Table 6Indicators for the relative size of the public; implications of a price measure (deviations from baseline projection)

30% benefits cut excl. OAP

		1992	1993	1994	1995	1996
Economic activity	%	2.0	3.3	4.3	4.8	5.2
Employment	%	4.0	6.8	8.7	9.9	10.7
Government expenditure as a percentage of national income	%-p	-4.6	-5.4	-6.0	-6.3	-6.4
Size of wedge (as a percentage of gross wage costs)	%-p	-8.4	-10.6	-12.0	-12.9	-13.4
Earners in the public sector as a percentage of earners in the private sector	%-p	-10.8	-17.3	-21.3	-23.5	-24.8
Inactive persons as a percentage of active persons	%-p	-6.1	-9.9	-12.2	-13.5	-14.3

30% benefits cut incl. OAP

		1992	1993	1994	1995	1996
Economic activity	%	2.3	3.8	4.8	5.4	5.8
Unemployment	%	4.6	7.7	9.8	11.1	11.9
Government expenditure as a percentage of national income	%-p	-6.9	-7.5	-8.1	-8.4	-8.5
Size of wedge (as a percentage of gross wage costs)	%-p	-12.1	-14.1	-15.6	-16.4	-16.9
Earners in the public sector as a percentage of earners in the private sector	%-p	-12.1	-19.1	-23.3	-25.7	-26.9
Inactive persons as a percentage of active persons	%-p	-6.8	-10.9	-13.3	-14.7	-15.5

Explanatory note:see table 5.

Table 7Indicators for the relative size of the public sector; implications of a cut in the employment in the public en semi-public sector (deviations from baseline projection)

		1992	1993	1994	1995	1996
Economic activity	%	-0.2	-0.5	-0.8	-1.1	-1.5
Employment	%	-0.4	-1.0	-1.6	-2.2	-2.9
Government expenditure as a percentage of national income	%-p	-0.2	-0.4	-0.6	-0.7	-0.8
Size of wedge (as a percentage of gross wage costs)	%-p	-0.1	-0.2	-0.2	-0.0	0.1
Earners in the public sector as a percentage of earners in the private sector	%-p	-0.5	-0.8	-0.9	-0.8	-0.7
Inactive persons as a percentage of active persons	%-p	0.5	1.1	1.9	2.7	3.5

Explanatory note:see table 5.

5 Conclusion: social security and the welfare state

This paper finds its inspiration in the observation that the generous and extended social security system in The Netherlands may have become an obstacle for welfare by decreasing labour participation and economic activity. The cliometric simulations of Section 4 clearly indicate that the rise in the wedge and the increase in eligibility for social security benefits (reflected by the decay of social climate) have significantly contributed to the reduction in the productive basis in The Netherlands during the last decades.

This is, however, only one side of the picture. An extension of social security may also enhance welfare by offering protection against financial risks to more people and by increasing equality. One can speak about a trade-off in social security between efficiency on the one hand and income redistribution and risk reduction on the other. Vijlbrief (1992) has empirically illustrated this trade-off by 'output possibilities curves', which show a negative relation between the (relative) benefit level and output.

Yet, the current level of social security in The Netherlands is most probably not in accordance with policy preferences and there is a broad consensus that the demand for social security should be reduced. Dutch policy plans to reduce this demand for social security diverge with regard to the instruments to be used. Some proposals imply price policies, i.e., a reduction of the benefit level, whereas others recommend volume policies, which seek to decrease the number of people eligible for benefits directly. The simulation results of tables 5 and 6 indicate that both policies can be effective in increasing economic activity and labour participation. As volume policies do not imply a fall in welfare by a reduction in the benefit level, they seem, at first sight, preferable to price policies.

However, we should take a closer look at an important example of volume policies, *active labour market policies*.

Active labour market policies, which provide training and job programmes for the unemployed combined with more pressure to search for and accept jobs, make it easier to monitor the behaviour of the unemployed and to control for moral hazard. Moreover, these policies will increase effective labour supply by preventing long-term unemployment. The favourable effects of active labour market policies can be strengthened by *a reform of the administrative authorities of social security* in The Netherlands. Until now, the tasks of paying benefits and helping people to find a (new) job are separated in The Netherlands. A closer co-operation or even an integration of these authorities may enforce the monitoring of job search by the unemployed[6]. The most important disadvantage of active labour market policies is that they involve a risk with regard to government expenditures. Especially job creation (for instance through wage subsidies) may endanger the reduction in the wedge and, consequently, the rise in labour participation.

There are, however, some other policies which may bring down the number of benefit recipients in The Netherlands, without reducing the level of benefits. A *sharper decline in the time profile of benefits* gives an additional incentive to search and accept a job. A major drawback of such a policy is that the inequality among the unemployed will increase, and that, in the case of uncertain unemployment durations, the financial risk will rise. Finally, *experience rating*, relating social security premiums to the unemployment and disability records of an industry, may enhance the efficiency of social security and reduce the number of benefit recipients.

The Dutch welfare state is endangered by the effects of social security on labour participation and economic activity. There are two negative spirals, which have led to a steady increase in the costs of social security, and to a fall in the productive basis for social security. Our simulation model offers a first step for a quantitative analysis of the linkages between the demand for social security, labour participation and economic activity in The Netherlands. The scenarios for the future indicate that the negative spirals can be reversed, either by a reduction in social security benefits or by bringing the social climate back to its 1970 level. The reconstruction of the Dutch welfare state implies a choice between creating a less generous social security system through price policies or making social security more affordable by means of volume policies. Although the latter policies may take some time to become effective and involve a risk with regard to a quick reduction in the costs of social security in The Netherlands, they are worth trying before harsher policies are applied.

ANNEX The model

Model equations

[6] For similar, more elaborated policy plans to enhance the 'social climate' we refer to Van Praag *et al.* (1992)./to the other articles in this volume.

Demography

$$B_b = B_{b\,-1} + \pi_1 B_{j\,-1} - \pi_2 B_{b\,-1} - \pi_3 B_{b\,-1} \quad (1)$$

$$B_{aow} = B_{aow\,-1} + \pi_3 B_{b\,-1} - \pi_4 B_{aow\,-1} \quad (2)$$

Allocation model

$$B_b' = B_b - B_o - B_{sc} \quad (3)$$

$$B_m/B_b' = 0.5\,(B_m/B_b')_{-1} + \beta_{0m} + \beta_{1m}A_v + \beta_{2m}l_b' + \beta_{3m}wed_a' + \beta_{4m}uv + \beta_{5m}sc + \beta_{6m}vr \quad (4)$$

$$B_{ui}/B_b' = 0.5\,(B_{ui}/B_b')_{-1} + \beta_{0ui} + \beta_{1ui}A_v + \beta_{2ui}l_b' + \beta_{3ui}wed_a' + \beta_{4ui}uv + \beta_{5ui}sc + \beta_{6ui}vr \quad (5)$$

$$B_{zu}/B_b' = 0.5\,(B_{zu}/B_b')_{-1} + \beta_{0zu} + \beta_{1zu}A_v + \beta_{2zu}l_b' + \beta_{3zu}wed_a' + \beta_{4zu}uv + \beta_{5zu}sc + \beta_{6zu}vr \quad (6)$$

with parameter restrictions

$\Sigma\beta_{0x} = 0.5, \quad x = m, ui, zu$

$\Sigma\beta_{ix} = 0, \quad i = 1, 2, 3, 4, 5, 6; \quad x = m, ui, zu$

with

$$A_v = \{(y/ap)\,(1 + 0.5(100-h))\} / B_b' \quad (7)$$

$$l_b' = l_b/(ap/ap_{1969}) \quad (8)$$

$$l_n = l_b\,(1 - wed) \quad (9)$$

$$l_{uin} = l_{uib}\,wed_a' \quad (10)$$

$$uv = l_{uin} / l_n \quad (11)$$

Government budget

$$g_{sal} = l_o\,(B_o + B_{sc}) \quad (12)$$

$$g_{ui} = l_{ui}\, B_{ui} \tag{13}$$

$$g_{aow} = l_{aow}\, B_{aow} \tag{14}$$

$$op_{ov} = \tau y \tag{15}$$

$$op_{bp} = g_{sal} + g_{ui} + g_{aow} + g_{aut} - op_{ov} - op_{aut} - ft_o \tag{16}$$

$$wed = op_{bp} / \{l_b\, B_m + l_o\, (B_o + B_{sc})\} \tag{17}$$

$$wed_a = [t_a / (t_a + t_q)]\, wed \tag{18}$$

$$wed_a' = (1 - wed_a) \tag{19}$$

Effect of labour participation at the goods market

$$y = y_{ex}\, (part/part_{gem})^{\gamma} \tag{20}$$

$$\text{with } part = (B_m + B_o + B_{sc}) / B_b \tag{21}$$

and $part_{gem}$ the average participation rate over the reference period

Parameter values

Table A.1 gives the parameter values of the allocation model which correspond to the selected values of the long term elasticities reported in the main text. In case linkage equations are included in the model simulations, they describe a full linkage: $\alpha_1 = \alpha_2 = \alpha_3 = 1$. The coefficient γ is set equal to 0.5.

Table A.1Parameter values of the allocation model

β	m	ui	zu
1 (A_v)	0.41	-0.10	-0.31
2 (l_b')	$-4.0\ 10^{-6}$	$1.0\ 10^{-6}$	$3.1\ 10^{-6}$
3 (wed_a')	0.065	-0.016	-0.050
4 (uv)	$-5.0\ 10^{-4}$	$5.0\ 10^{-4}$	0
5 (sc)	0.0064	-0.0072	0.0008
6 (vr)	0.0013	0.0013	-0.0025

Explanatory note:parameter values do not exactly suffice the restrictions due to rounding errors

Symbols

apTrend of labour productivity (exogenous)
A_vDeterminants of labour demand which are relevant to the allocation model (excluding labour costs)
B_{aow}Number of persons eligible for basic old age and widows and orphans pensions
B_bWorking age population (aged 15-65)
B_jPopulation under 15
B_mNumber of workers in the market sector
B_oNumber of workers in public sector (civil servants) and in social security offices
B_{ow}Remainder of working age non-participants eligible for benefits
B_{sc}Number of workers in semi-public sector
B_{vut}Number of persons eligible for an early retirement benefit
B_uNumber of unemployed with an unemployment benefit
B_{ui}Total number of working age non-participants eligible for benefits
B_{wao}Number of persons eligible for benefits under the Work Disablement Act (WAO)
B_zNumber of persons receiving benefits because of temporary illness
B_{zn}Number of working age non-participants not eligible for social security benefits
ft_o Financial deficit of the government (constant prices)
g_{aow}Government expenditure on basic old age and widows and orphans pensions (constant prices)
g_{aut}Other (autonomous) government expenditure (constant prices)
g_{sal}Salaries of civil servants and workers in semi-public sector (constant prices)
g_{ui}Total government expenditure on benefits for working age non-participants (constant prices)
hIndex contractual labour time
l_{aow}Benefit level for basic old age and widows and orphans pensions
l_bGross real labour costs per worker in the market sector
l_b'Idem corrected for labour productivity
l_nNet real wages in the market sector
l_sLevel of salaries of civil servants and workers in the semi-public sector at constant prices
l_{uib}Average level of gross benefits to the working age population at constant prices
l_{uin}Average level of net benefits to the working age population at constant prices

op_{ani} Other government income (constant prices)
op_{bip} Government income from wage and income taxes, and from social security premiums (constant prices)
op_{ov} Government income from other taxes (constant prices)
part Labour participation rate
$part_{gem}$ Average labour participation rate over the reference period
sc Proxy for so called 'social climate' i.e. the instrument for reducing the number of working age non-participants eligible for social security benefits
$t_a/(t_a+t_q)$ Share of workers' tax and premium burden in total wedge
uv Replacement ratio
vr Trend of female participation rate
wed Wedge between gross wage costs and net wages
wed_a Tax and premium burden for workers
y National income (constant prices)
y_{ex} Idem, at average participation rate (determined exogenously)
π_1 Ratio of pupulation under 15 which obtains working age
π_2 Ratio of working age population of those who leave the working age population (by deceases, net emigration)
π_3 Ratio of working age population of those who become eligible for an old age or widow's pension
π_4 Ratio of number of persons eligible for an old age or widow's pension and of the number of persons leaving this category (by deceases, net emigration, remarrying)
τ Indirect tax rate

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